

WHAT IS CLAIMED IS:

1. An electrical device comprising:

a plurality of printed circuit boards configured into a multi-layer configuration;

at least a first printed circuit board of said plurality of printed circuit boards comprising a primary winding of a transformer;

at least a second printed circuit board of said plurality of printed circuit boards comprising a secondary winding of the transformer; and

a plurality of connector pins configured to electrically connect the primary winding and the secondary winding to a main circuit board.

2. The device of Claim 1, wherein each pin of the plurality of connector pins penetrates only the at least one first printed circuit board or the at least one second printed circuit board.

3. The device of Claim 2, wherein the at least one first printed circuit board and the at least one second printed circuit board are electrically separated from each other.

4. The device of Claim 1, further comprising a connector configured to connect the winding on at least two of the plurality of printed circuit boards in either a parallel or a series electrical configuration.

5. The device of Claim 1, wherein each of the plurality of printed circuit boards comprises a multi-layer board.

6. The device of Claim 1, further comprising a main circuit board, wherein the connector pins connect the windings on the plurality of printed circuit boards to the main circuit board.

7. An electrical device comprising:  
a plurality of core members;

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a plurality of printed circuit boards configured to be stackable in a multi-layer configuration between the core members;

at least a first printed circuit board of the plurality of printed circuit boards comprising a primary winding of a transformer;

5 at least a second printed circuit board of the plurality of printed circuit boards comprising a secondary winding of the transformer;

a connection member configured to selectably connect the winding on at least two of the plurality of printed circuit boards in either a parallel or a series electrical configuration; and

10 a plurality of connector pins configured to electrically connect the windings on the plurality of printed circuit boards to a main circuit board.

8. The device of Claim 7, wherein each pin of the plurality of connector pins penetrates only the at least one first printed circuit board or the at least one second printed circuit board.

9. The device of Claim 7, wherein each of the plurality of printed circuit boards comprises four to six layers.

20 10. The device of Claim 7, wherein the at least one first printed circuit board and the at least one second printed circuit board are electrically separated from each other.

25 11. The device of Claim 7, wherein said device is configured to function as a transformer.

12. A method of manufacturing an electrical device, the method comprising: printing at least one coil on each of a plurality of printed circuit boards; configuring electrical connections on the plurality of printed circuit boards to include the at least one coil on each printed circuit board so as to define a primary winding and a secondary winding;

stacking the plurality of printed circuit boards in a stacked arrangement;

and

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connecting the primary winding on the printed circuit boards and the secondary winding on the printed circuit boards to a main circuit board with connector pins in such a manner that the connector pins connecting the primary winding only penetrate printed circuit boards containing said primary winding and connector pins connecting the secondary winding only penetrate printed circuit boards containing said secondary winding.

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13. The method of Claim 12, further comprising connecting windings on at least two of the plurality of printed circuit boards in either a parallel or a series electrical configuration.

14. The method of Claim 12, wherein the printed circuit boards contain four to six layers.

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15. The method of Claim 12, wherein stacking the plurality of the printed circuit boards places the primary winding and the secondary winding so as to be electrically separated from each other.

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16. The method of Claim 12, wherein connecting the plurality of the printed circuit boards comprises configuring the electrical device to function as a transformer.

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17. An electrical device comprising:  
a plurality of core members;

a plurality of printed circuit boards, positioned between the plurality of core members, with each printed circuit board having a plurality of layers, wherein the plurality of printed circuit boards are stackable into a multi-layer configuration;

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at least one coil defined on each of the plurality of layers of the plurality of printed circuit boards;

at least a first printed circuit board of the plurality of printed circuit boards comprising a primary winding of a transformer;

at least a second printed circuit board of the plurality of printed circuit boards comprising a secondary winding of a transformer;

a connection member configured to connect the windings on at least two of the plurality of printed circuit boards in either a parallel or a series electrical configuration; and

a plurality of connector pins configured to electrically connect the plurality of printed circuit boards to the main circuit board, wherein each pin of the plurality of connector pins penetrates only the at least first printed circuit board of the plurality of printed circuit boards comprising the primary winding or the at least second printed circuit board of the plurality of printed circuit boards comprising the secondary winding.

18. An electrical device comprising:

a plurality of printed circuit boards, each printed circuit board having a plurality of layers, wherein the plurality of printed circuit boards are stackable into a multi-layer configuration;

at least one coil defined on each of the plurality of layers of the plurality of printed circuit boards;

means for configuring electrical connections on the plurality of printed circuit boards to include the at least one coil on each printed circuit board so as to define a primary winding and a secondary winding;

means for connecting the primary winding on the printed circuit boards and the secondary winding on the printed circuit boards to a main circuit board with connector pins in such a manner that the connector pins connecting the primary winding only penetrate printed circuit boards containing said primary winding and connector pins connecting the secondary winding only penetrate printed circuit boards containing said secondary winding; and

means for connecting the winding on at least two of the plurality of printed circuit boards in either a parallel or a series electrical configuration.